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AMENDMENTS TO THE CLAIMS

1. (currently amended) An isolated and purified poly(ADP-ribose) polymerase (PARP) homolog comprising consisting of human PARP2 (SEQ ID NO: 2) and or a functional equivalents equivalent thereof which are is at least 85% homologous thereto, exhibits poly(ADP-ribose)-synthesizing activity, and have has an amino acid sequence which
  - a) has a functional NAD<sup>+</sup> binding domain comprising the sequence motif  
 $PX_n(S/T)GX_3GKGIYFA$  (SEQ ID NO:11)  
in which n is an integral value from 1 to 5, and the X radicals are, independently of one another, any amino acid;  
and
  - b) lacks a zinc finger sequence motif of the general formula  
 $CX_2CX_mHX_2C$  (SEQ ID NO:30)  
in which  
m is an integral value of 28 or 30, and the X radicals are, independently of one another, any amino acid.
2. (currently amended) A functional equivalent of a The PARP homolog as claimed in claim 1, wherein the functional NAD<sup>+</sup> binding domain comprises one of the following general sequence motifs:

(S/T)XGLR(I/V)XPX<sub>n</sub>(S/T)GX<sub>3</sub>GKGIYFA (SEQ ID NO:12) or  
LLWHG(S/T)X<sub>7</sub>IL(S/T)XGLR(I/V)XPX<sub>n</sub>(S/T)GX<sub>3</sub>GKGIYFAX<sub>3</sub>S  
KSAXY (SEQ ID NO:13)

in which  
n is an integral value from 1 to 5, and the X radicals are, independently of one another, any amino acid.
3. (currently amended) A functional equivalent of a The PARP homolog as claimed in

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claim 1, comprising at least another one of the following part-sequence motifs:

LX<sub>9</sub>NX<sub>2</sub>YX<sub>2</sub>QLLX(D/E)X<sub>10/11</sub>WGRVG (SEQ ID NO: 15),  
AX<sub>3</sub>FXKX<sub>4</sub>KTXNXWX<sub>5</sub>FX<sub>3</sub>PXK (SEQ ID NO:16),  
QXL(I/L)X<sub>2</sub>IX<sub>9</sub>MX<sub>10</sub>PLGKLX<sub>3</sub>QIX<sub>6</sub>L (SEQ ID NO:17),  
FYTXIPHXFGX<sub>3</sub>PP (SEQ ID NO:18); and  
KX<sub>3</sub>LX<sub>2</sub>LXDIEXAX<sub>2</sub>L (SEQ ID NO:19),

in which the X radicals are, independently of one another, any amino acid.

4-32 (canceled)